IN THE CLAIMS:

Please amend Claims 1-5, 17, 18 and 23-27 as set forth below.

1. (Currently Amended) A hearing aid, comprising:

a transducer implantable within a patient to stimulate a component of an auditory system;

a microphone to process acoustic sounds and generate frequency responses representative of the acoustic sounds; and

a signal processor to process at least one feedback frequency response from the microphone to generate at least one test parameter and use the at least one test parameter to determine at least one operational characteristic of the microphone, wherein the feedback frequency response is generated by the microphone in response to an acoustic feedback sound generated in conjunction with actuation of said transducer in response to at least one test signal. ~~provided to the transducer.~~

2. (Currently Amended) The hearing aid of Claim 1 comprising:

a test signal generator to generate and provide the at least one test signal to the transducer, wherein the at least one test signal causes the transducer to stimulate the component of the auditory system and generate the acoustic feedback sound.

3. (Currently Amended) The hearing aid of Claim 2 wherein the signal processor is configured to generate and provide the at least one test signal to the transducer.

4. (Currently Amended) The hearing aid of Claim 3 wherein the at least one test signal is provided at a predetermined frequency to generate the acoustic feedback sound at a predetermined tone.

5. (Currently Amended) The hearing aid of Claim 3 wherein the at least one test signal is swept across a predetermined frequency range to generate the acoustic feedback sound at a plurality of predetermined tones.

6. (Original) The hearing aid of Claim 3 wherein the at least one test signal comprises: one of noise and pseudorandom noise.

7. (Original) The hearing aid of Claim 3 wherein the at least one test signal comprises: at least one chirp.

8. (Original) The hearing aid of Claim 1 wherein the at least one operational characteristic of the microphone comprises:

changing characteristics of acoustic frequency responses of the microphone generated in response to the acoustic sounds

9. (Original) The hearing aid of Claim 8 wherein the signal processor is configured to use the at least one test parameter to generate drive signals for the transducer that compensate for the changing characteristics of the acoustic frequency responses of the microphone.

10. (Original) The hearing aid system of Claim 9 wherein the at least one test parameter comprises:

at least one delta frequency representative of a difference between the feedback frequency response and a calibration frequency response.

11. (Original) The hearing aid system of Claim 10 wherein the at least one test parameter comprises:

at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the calibration frequency response.

12. (Original) The hearing aid system of Claim 11 wherein the signal processor is configured to use the at least one delta frequency to generate drive signals for the transducer that compensate for the changing characteristics of the acoustic frequency responses according to prescriptive parameters for the patient.

13. (Original) The hearing aid system of Claim 10 wherein the signal processor includes an upper and lower threshold frequency response, and

if the feedback frequency response is within the upper and lower threshold frequency response, the signal processor processes the feedback frequency response to generate the at least one delta frequency, and

if the feedback frequency response is outside the upper and lower threshold frequency response, the signal processor continues to use a previous feedback frequency response.

14. (Original) The hearing aid system of Claim 1 wherein the signal processor is a digital signal processor.

15. (Original) In a hearing aid, a method of compensating for changing characteristics of frequency responses generated by a microphone in response to an acoustic input, the method comprising:

conducting a test session to determine changes in the frequency responses of the microphone;

generating at least one test parameter representative of the changes in the frequency responses of the microphone; and

using the at least one test parameter to generate drive signals for a transducer that compensate for the changes in the frequency responses of the microphone.

16. (Original) The method of Claim 15 wherein the step of conducting the test session comprises the steps of:

generating and providing a test signal to a transducer;

driving the transducer with the test signal to generate acoustic feedback;

detecting the acoustic feedback in the microphone;

generating a feedback frequency response in the microphone; and

comparing the feedback frequency response with the test signal to determine the at least one test parameter.

17. (Currently Amended) The method of Claim 13 wherein the step of generating and providing the test signal comprises:

generating and providing the test signal at a predetermined frequency to generate the acoustic feedback <u>sound</u> at a predetermined tone.

18. (Currently Amended) The method of Claim 15 wherein the step of generating and providing the test signal comprises:

generating and providing the test signal at a plurality of predetermined frequencies to generate the acoustic feedback <u>sound</u> at a plurality of predetermined tones.

19. (Original) The method of Claim 16 wherein the step of generating the at least one test parameter comprises:

computing at least one delta frequency representative of a difference between the feedback frequency response and a calibration frequency response.

20. (Original) The method of Claim 18 wherein the step of generating the at least one test parameter comprises:

computing at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the calibration frequency response.

21. (Original) The method of Clam 19 wherein the step of using the at least one test parameter to generate drive signals for the transducer that compensate for the changes in the frequency responses of the microphone comprises:

processing acoustic frequency responses from the microphone using the at least one delta frequency.

22. (Original) The method of Claim 19 comprising:

comparing the feedback frequency response to an upper and lower threshold frequency response, and

if the feedback frequency response is within the upper and lower threshold frequency response, using the feedback frequency response to generate the at least one delta frequency, and if the feedback frequency response is outside the upper and lower threshold frequency response, using a previous feedback frequency response.

23. (Currently Amended) A hearing aid comprising:

a transducer implantable within a patient to stimulate a component of an auditory system; a microphone to process acoustic sounds and generate frequency responses; and

a signal processor to process at least one feedback frequency response from the microphone to generate drive signals for the transducer that compensate for changed characteristics of the microphone frequency responses, wherein the feedback frequency response is generated by the microphone in response to an acoustic feedback sound generated in conjunction with actuation of said transducer in response to at least one test signal. ~~provided to the transducer.~~

24. (Currently Amended) The hearing aid of Claim 23 comprising:

a test signal generator to generate and provide the at least one test signal to the transducer that causes the transducer to stimulate the component of the auditory system and generate the acoustic feedback sound.

25. (Currently Amended) The hearing aid of Claim 23 wherein the signal processor is configured to generate and provide the at least one test signal to the transducer that causes the transducer to stimulate the component of the auditory system and generate the acoustic feedback sound.

26. (Currently Amended) The hearing aid of Claim 24 wherein the at least one test signal is provided at a predetermined frequency to generate the acoustic feedback sound at a predetermined tone.

27. (Currently Amended) The hearing aid of Claim 24 wherein the at least one test signal is swept across a predetermined frequency range to generate the acoustic feedback sound at a plurality of predetermined tones.

28. (Original) The hearing aid of Claim 24 wherein the at least one test signal is one of noise and pseudorandom noise.

29. (Original) The hearing aid of Claim 24 wherein the at least one test signal is a chirp.

30. (Original) The hearing aid system of Claim 23 wherein the at least one test parameter comprises:

at least one delta frequency representative of a difference between the feedback frequency response and a calibration frequency response.

31. (Original) The hearing aid system of Claim 23 wherein the at least one test parameter comprises:

at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the calibration frequency response.

32. (Original) The hearing aid system of Claim 30 wherein the signal processor is configured to use the at least one delta frequency to generate the drive signals for the transducer that compensate for the changing characteristics of the frequency responses according to prescriptive parameters for the patient.

33. (Original) The hearing aid system of Claim 30 wherein the signal processor includes an upper and lower threshold frequency response, and

if the feedback frequency response is within the upper and lower threshold frequency response, the signal processor processes the feedback frequency response to generate the at least one delta frequency, and

if the feedback frequency response is outside the upper and lower threshold frequency response, the signal processor continues to use a previous feedback frequency response.

34. (Original) The hearing aid system of Claim 23 wherein the signal processor is a digital signal processor.

35. (Previously Presented) A hearing aid, comprising:

a microphone to process acoustic sounds and generate frequency responses;

a signal processor to process the frequency responses to generate transducer drive signals, the signal processor comprising:

a test signal generator to generate and provide a test signal;

equalization logic to process a feedback frequency response from the microphone representative of the test signal to generate an equalization matrix; and

frequency shaping logic to use the equalization matrix to process an acoustic frequency response from the microphone to generate a processed signal that compensates for changing characteristics of the acoustic frequency response; and

a transducer to stimulate an auditory component of a patient in response to the transducer drive signals.

36. (Previously Presented) The hearing aid of Claim 35 wherein the test signal is provided at a predetermined frequency to generate the feedback frequency response at a predetermined tone.

37. (Previously Presented) The hearing aid of Claim 35, wherein the at least one test signal is swept across a predetermined frequency range to generate feedback frequency responses at a plurality of predetermined tones.

38. (Previously Presented) The hearing aid of Claim 35 wherein the at least one test signal is one of noise and pseudorandom noise.

39. (Previously Presented) The hearing aid of Claim 35 wherein the at least one test signal is a chirp.

40. (Previously Presented) The hearing aid of Claim 35 wherein the equalization matrix includes at least one delta frequency representative of a difference between the feedback frequency response and a calibration frequency response.

41. (Previously Presented) The hearing aid of Claim 35 wherein the equalization matrix includes at least one delta frequency representative of a difference between an average of a plurality of feedback frequency responses and the calibration frequency response.

42. (Previously Presented) The hearing aid of Claim 35 wherein the equalization logic includes an upper and lower threshold frequency response and if the feedback frequency response is within the upper and lower threshold frequency response, the equalization logic processes the feedback frequency response to generate the equalization matrix and if the feedback frequency response is outside the upper and lower threshold frequency response, the equalization logic continues to use a previous feedback frequency response.

43-47. (Cancelled)